

Accessing the General Curriculum Through Flexible Technology

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Session Outline

- Background information
- Description of the project
- Perspectives
 - Project Level
 - Administrator
 - Teacher
- What we learned

Universal Design for Learning

The term “universal design for learning” means a scientifically valid framework for guiding educational practice that...

- a. Provides flexibility in the ways information is presented, in the ways students respond or demonstrate knowledge and skills, and in the ways students are engaged and,
- b. Reduces barriers in instruction, provides appropriate accommodations, supports and challenges, and maintains high achievement expectations for all students, including students with disabilities and students who are limited English proficient

Higher Education Opportunity Act 2008

Universal Design for Learning

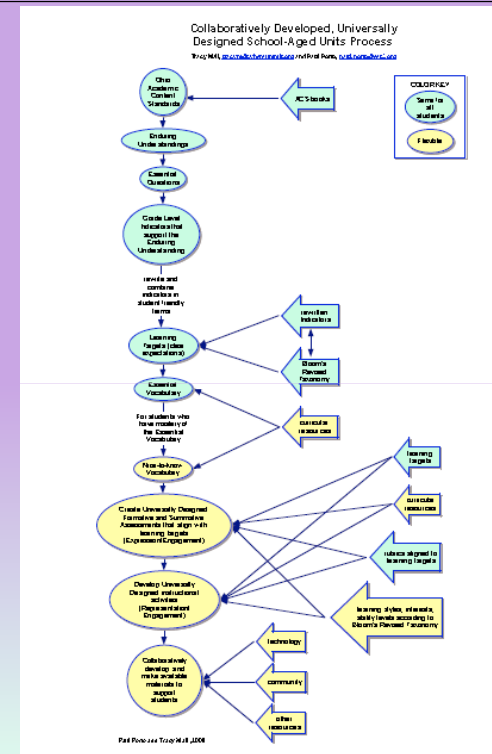
Universal Design for Learning is the practice of embedding flexible strategies into the curriculum during the planning process.

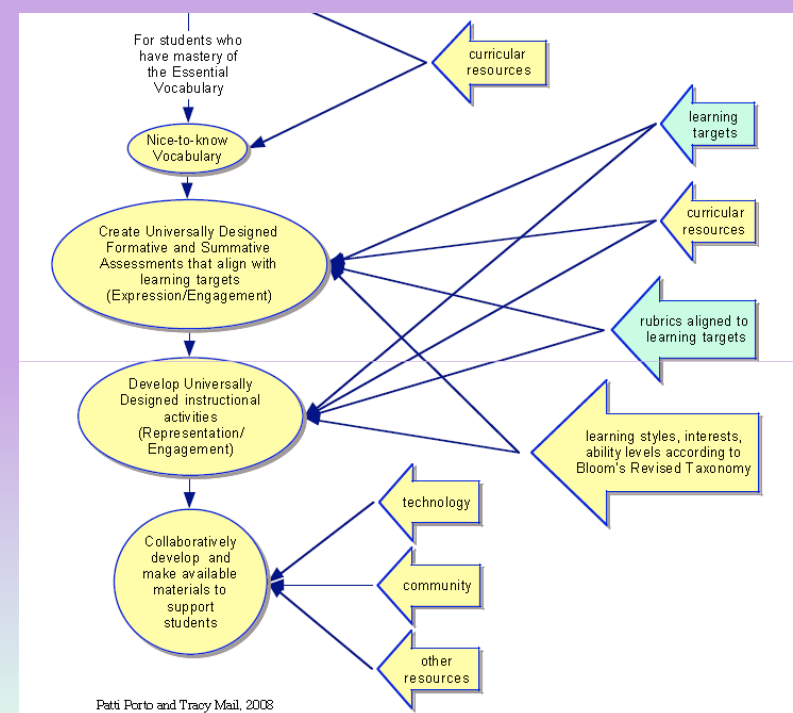
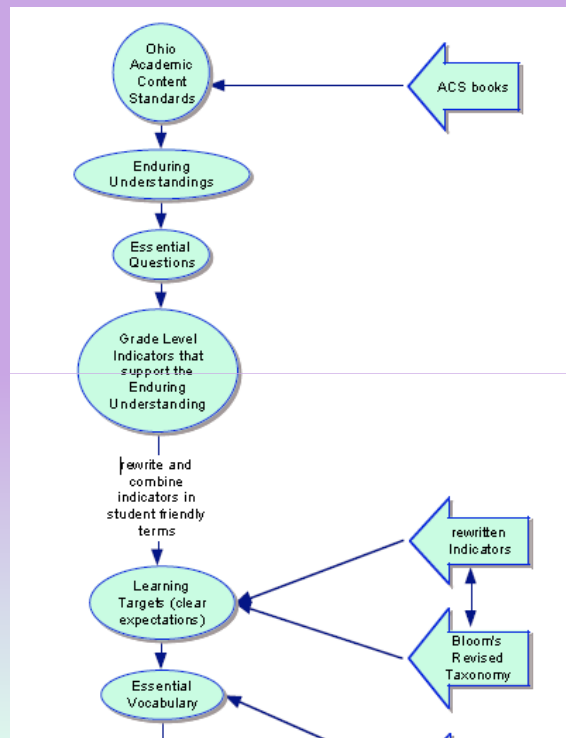
DeCoste, D.,
A Handbook on Universal Design for
Learning and Accessible Technology

Three Principles of UDL

- Multiple Means of Representation – to give learners various ways of acquiring information and knowledge
- Multiple Means of Expression – to provide learners alternatives for demonstrating what they know
- Multiple Means of Engagement – to tap into learners interests, offer appropriate challenges and increase motivation

OUR PROJECT





Patti Porto and Tracy Mail, 2008

<http://flextech.wikispaces.com>

Wiki – Session Pages

Getting Started | Yahoo Mail | User Resources | Webmail | pattip wiki | Patti site | Ztg | 18U Fall Ball | Ohio School Leaders | Other bookmarks

FlexTech

home | page | discussion | history | notify me

Protected

Accessing the General Curriculum Through Flexible Technology

Please click on the link below to take the Technology Use Survey
[Click here to take the survey](#)

Click the icon below to see the "Big" UDL picture flowchart
[Our_UDL_philosophy.isf.pdf](#)

Click the icon below to view RtI 7 Core Features graphic
[RtI_core_features_AIMSweb.isf.pdf](#)

Click the play button below to listen to Dave Edyburn's podcast on UDL and Assistive Technology from NECC 2005
 00:00 00:00

Click the icon below to download the Word doc for the Guiding Questions Activity
[guidingquest.doc](#)

Click the icon below to download the 2-19-08 Reflection Activity
[Reflection 2-19.doc](#)

Join this Wiki | Recent Changes | Manage Wiki | Search

Home | Definitions | UDL Resources | April 17, 2008 | May 8, 2008 | More Resources

Assistive Technology Resources | edit navigation

April 17, 2008 | page | discussion | history | notify me

tech

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Links and information for the 4/17/08 session

Complete the Flexible Technology Inventory.

Click [here to open the inventory on Survey Monkey](#). You may want to look at the inventory and print it out before going online to complete it. It asks questions about hardware, software, devices and web-based tools and the degree of use in your classroom/program. Please complete the inventory individually. You will be using the survey together with your team to look at what is in place and what you may want to look at purchasing.

Please try and complete the inventory by Monday night, 4/14/08 so we can have the information together for our 4/17/08 session.

Read the following article

Read the article [Bloom's Taxonomy Blooms Digitally](#). At the end of the article is a link to Andrew Churches' phenomenal website. There is a section called "ICT Tools Key and examples" that may be helpful when deciding what to include in your unit (during our last 2 sessions) and when deciding how to spend your grant money.

Take some time and listen to one or more of the following podcasts.

On [Teachers are Talking Episode 6, Karen Janowski](#) is the guest speaker talking about UDL, assistive technology and general/special education collaboration. I highly recommend this! (Approximately one hour)

On the [Women of Web 2.0 #59](#) show guest Patrick Higgins leads a conversation about teaching and the passion for teaching and how to increase technology use in our classrooms through a supportive network.

Here's a link to the podcast [Unleashing the Transformational Power of One-to-One Computing in K-12](#) from the Moving at the Speed of Creativity website.

Done

Edit This Page

Wiki - Dictionary

The screenshot shows a Wiki page titled 'Definitions' with a search bar and navigation links. The main content area displays the definition for 'Assistive technology device' under the letter 'A'. The definition states: 'Any item, piece of equipment, or system, whether acquired commercially, modified, or customized, that is commonly used to increase, maintain, or improve functional capabilities of individuals with disabilities. OR A term used to describe all of the tools, products, and devices, from the simplest to the most complex, that can make a particular function easier or possible to perform'. There are also links for 'Home', 'Definitions', 'UDL Resources', and 'More Resources'.

Wiki - Resources

The screenshot shows a Wiki page titled 'Resources for Universal Design for Learning & Flexible Technology'. The main content area lists various resources related to Universal Design for Learning, including links to 'UDL resources from OCALI', 'Wikispaces page for teachers', 'UDL Editions from CAST', 'Educational Origami', 'IT for AT', 'West Virginia's Teach 21', 'Aaron's website', and a 'Wikipedia entry on Student Engagement'. There are also links for 'Home', 'Definitions', 'UDL Resources', and 'More Resources'.

Inventory

The screenshot shows a survey form titled 'Flexible Technology Inventory'. The form includes a section for '1. Flexible Technology Inventory' with a description: 'This survey will help teams determine the resources that are currently available to assist in planning for future needs.' Below this is a section for '2. Computer Hardware' with a table for recording the availability of various computer hardware items. The table has columns for 'In my classroom', 'Available in the building', 'In a computer lab', 'Available in district', 'Available for loan from elsewhere', 'Not available', and 'Don't know'. The items listed are 'Windows desktop computer(s)', 'Macintosh desktop computer(s)', 'Windows laptop', 'Macintosh laptop', and 'Laptop cart'. There is also a section for 'Additional information' with a text box.

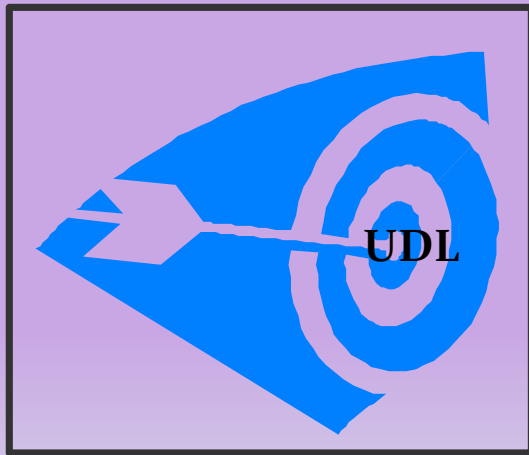
	In my classroom	Available in the building	In a computer lab	Available in district	Available for loan from elsewhere	Not available	Don't know
Windows desktop computer(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Macintosh desktop computer(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Windows laptop	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Macintosh laptop	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laptop cart	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Lessons Learned

- Team experience and background knowledge
- Team composition
- Curricular components
- Communication/collaboration within the district
- Sharing resources
- Importance of job-embedded PD

COMMON BELIEFS & GOALS

- SHARED VISION
- INSPIRING OTHERS
- AVOID OVERLOAD
"ONE MORE THING"



"Initiating change begins with sharing a sense of direction ... few worthwhile journeys progress in a single line"

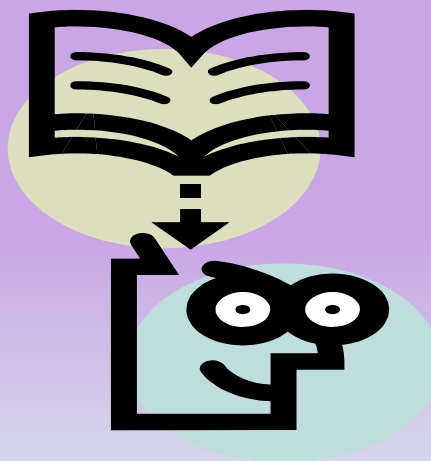
START SMART!



Create teams of teachers who can work together, share ideas & materials, trouble shoot, co-teach, observe & provide feedback

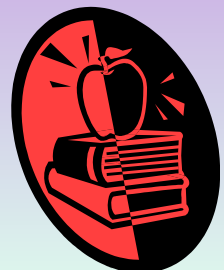
EXAMINE POLICIES & PROCEDURES TO SUPPORT UDL

- PLAN PROFESSIONAL DEVELOPMENT FOR THE COMPLEXITY OF CHANGE

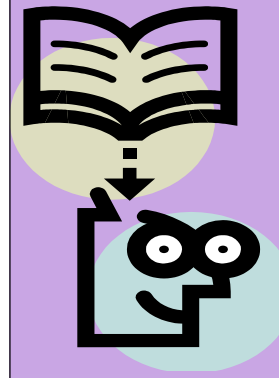
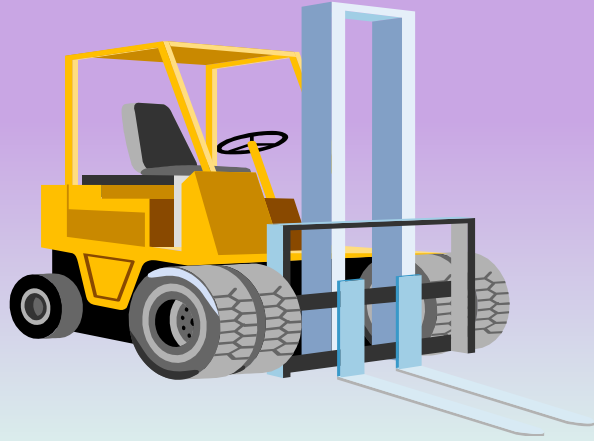


PROVIDE ONGOING ASSISTANCE

- Time to Plan
- Revise Curriculum Maps
- Access to Wide Range of Materials
- Observe Other Teachers
- Safe to Try New Approaches
- Meaningful Feedback



APPLY PRESSURE WITH SUPPORT



MAKE THE LINK OF UDL WITH PROFESSIONAL RESPONSIBILITY

- Student Achievement is OUR CORE BUSINESS
- Professional & State Standards

FINAL THOUGHTS



- TEACHER PREPARATION

Coleman Biology UDL Ecology Unit Case Study

- ✓ Lesson Planned according to UDL format
- ✓ Developed plan for learning and assessing using UDL
- ✓ Implementation and Evaluation of Project

Ecology Unit Task Board

<p>Introduction to Ecology</p> <p>1 – Read/listen to pages 253, 254, 256, 257, 258, 263-266; complete notes outline</p> <p>2 – Read/listen to pages 253, 254, 256, 257, 258, 263-266; complete notes outline; write 3 multiple choice and 3 true false questions about the reading providing correct answers</p> <p>3 – Read/listen to pages 253, 254, 256, 257, 258, 263-266; complete notes outline; write 3 essay questions about the reading providing correct answers</p> <p>To Listen to Book Pages: Use Kurzweil then open K:Drive, High School, Biology, Teacher Folders</p>	<p>Vocabulary</p> <p>1 – create flash cards using index cards for essential vocabulary</p> <p>2 – create and print flash cards including pictures using the computer for essential vocabulary</p> <p>3 – create and print flash cards including pictures using the computer for essential and nice to know vocabulary</p> <p>Essential Vocabulary: biotic, abiotic, organism, ecosystem, producer, consumer, decomposer, symbiosis, food chain, food web</p> <p>Nice to Know Vocabulary: fossil fuel, carnivore, herbivore, omnivore, habitat, parasitism, mutualism, commensalism, nutrient cycle, photosynthesis, predator</p>	<p>Energy Flow</p> <p>1 – Watch streaming video and complete post quiz with teacher supervision receiving 50% or less.</p> <p>2 – Watch streaming video and complete post quiz with teacher supervision receiving between 50-70% on the quiz</p> <p>3 – Watch streaming video and complete post quiz with teacher supervision receiving at least an 80% on the quiz</p> <p>www.unitedstreaming.com</p> <p>username: OH_ND_HS password: Knights</p> <p>Video Title - Biology: The Science of Life: Ecology: Organisms in their Environment</p>
<p>Food Web</p> <p>1 – Use information provided to create a hand written food web for a deciduous forest</p> <p>2 – Use information provided to create and print a food web of a deciduous forest using Inspiration software</p> <p>3 – Research an ocean ecosystem to create a food web using Inspiration software including 5 consumers, 3 producers, and 1 decomposer.</p> <p>Deciduous Forest: Producers (lilac bush, honeysuckle bush), Consumers (deer, bird, insect, bear), Decomposers (soil bacteria, worms)</p>	<p>Biotic vs Abiotic</p> <p>2 – List 30 "things" from the courtyard; label living (L), non-living (NL), or dead (D); list and describe the 7 characteristics of life; turn in completed Courtyard Worksheet</p>	<p>Nutrient Cycles</p> <p>1 – Read/listen and complete notes outline for pages 260-262; notes must include drawings of each cycle</p> <p>2 – Listen to podcasts for water, carbon, and nitrogen cycle; complete diagram and questions (all posted on your classroom website)</p> <p>3 – Create a podcast script and podcast discussing the impact humans have had on the water, carbon, and nitrogen cycle; e-mail podcast to your teacher (podcast script posted on your classroom website)</p>
<p>Symbiotic Relationships</p> <p>1 – Read/listen to pages 276-277; in one paragraph describe each type of symbiosis and give an example of organisms which have this relationship.</p> <p>2 – Watch Invasion of the Body Snatchers and Magic School Bus Mutualism; read the commensalism article; complete Symbiosis Worksheet (all posted on your classroom website)</p> <p>3 – Complete a podcast describing symbiotic relationships. You will first complete a podcast outline and have it checked by your teacher, then create a podcast in which symbiosis, mutualism, parasitism, and commensalism are clearly described including examples of each. Outline and podcast should be submitted to teacher.</p>	<p>Predator – Prey Relationships</p> <p>1 – Complete Owl Pellet Dissection; complete data and observations table</p> <p>2 – Complete Owl Pellet Dissection; complete data and observations table AND conclusion questions</p> <p>3 – Complete Owl Pellet Dissection; complete data and observations table AND conclusion questions; identify and mount skeleton of prey onto paper plate</p>	<p>Human Impact</p> <p>1 – Cut and paste the human activity with its effect on the environment. Worksheet on website.</p> <p>2 – Research and describe one positive and one negative impact humans have on the environment and explain their affects. 1 page minimum including cited resources (bibliography).</p> <p>3 – Write a formative letter to your principal proposing a school wide change which would positively affect the environment. Must include a clear explanation of the problem, a detailed description of the change to take place, and expected positive environmental impact. 2 page minimum including cited resources (bibliography).</p> <p>**Resource links provided on website**</p>

<http://colemanbio.wikispaces.com>

ColemanBio home page discussion history notify me

guest - Join - Help - Sign In - wikispaces

Join this Wiki Recent Changes Manage Wiki Search

Welcome to the Coleman Bio webpage.

To contact Mrs. Coleman e-mail her at the address below. You can expect a response within 48 hours.
aaron.coleman@nordonnaschools.org
 You can also contact Mrs. Coleman via voicemail at 330-908-6199 x 586089

Classroom Policy and Procedure
[Bio Newsletter pub](#)
[Holt Biology Textbook](#)

Home
 Biotechnology
 Cells
 Chemistry
 Coleman Favorites
 CVCC Biology
 DNA
 Ecology
 Evolution
 Exam Help
 Genetics
 Photosynthesis and Cellular Respiration
 Tools of Biology

Protected

11/20/09

What Worked?

Before the Lesson

- Co-planning
- Material Development
- Variety of Technology Available
- Supportive Administration, Tech Crew, and Resource Support

During the Lesson

- Student Choice/Independence
- Modeling Capabilities in Classroom
- Technology Availability
- Inquiry Based Activities

After Lesson

- 1% increase in Post-Test Scores from Last Year (Direct Instruction)
- 21% Increase Pre-Test to Post-Test
- 23.4% Increase Pre-Test to Post Test for Special Education Students
- 87.3% Overall Class Average for Task Board
- 89% Average on Task Board for Special Education Students

What Didn't Work?

Before the Lesson

- Time Management
 - Co-planning with other teachers and special education teachers
 - Development of Materials

During the Lesson

- Teaching Technology and Content at Same Time
- Time Management for Students
- Technology & Research Frustrations Lead to Shut Down
- Just TOOOOO Much of a New Thing = BURNOUT!

After Lesson

- 65% Post-Test Average for Special Education Students
- 64.9% Overall Average for Research Assessment
- 45.8% Average for Special Education Students on Research Assessment

Application Problem!



Student Responses

• Rachel

• Matt

Changes for Next Year

- ✓ Gradual Modeling and Practice with Technology
- ✓ Controlled Sequence of Events; Task Board Order
- ✓ Application Modeling
- ✓ Partners for Research Assessment or Different Assessment Format
- ✓ Increased Involvement with Special Education

Action Research

Social Studies timeline lesson –

Teacher-centric - Teacher used overhead to create the timeline and lectured to students. Students used a ruler and paper timeline at their seats.

Interactive - Students volunteered to take turns filling in the timeline answers on white board. Students also used a ruler and paper timeline at their seats.

Likert Scale:

1(Definitely No) 2(No) 3(Sometimes) 4(Yes) 5(Definitely Yes)

Types of Engagement

(Predictor of Achievement)

- **Behavioral** – involvement in learning tasks, persistence, attention, class participation
- **Emotional/Affective** – interest, boredom, happiness, anxiety
- **Cognitive** – learning goals, investment in learning, intrinsic motivation, self-regulation

Chapman (2003), Russell, Ainley, & Frydenberg (2005)

Behavioral Measures

<i>Groups</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
Overhead, teacher lecture (I participate in class daily discussions.)	0	1	1	9	7
White board, student interaction (I participate more when I use the whiteboard more than only class discussion.)	2	2	3	0	12

Behavioral Measures

<i>Groups</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
White board, student interaction (I can pay attention more when my teacher uses the whiteboard instead of using the overhead and discussion.)	0	1	4	0	14

<i>Groups</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
Overhead, teacher lecture (I am able to focus, and not get distracted, during class.)	0	0	7	4	6
White board, student interaction (I am able to focus, and not get distracted, when we	1	0	0	6	12

Emotional/Affective Measures

<i>Groups</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
White board, student interaction (I am more interested in the lesson when we use the whiteboard than when we only discuss the material.)	0	2	2	1	14
White board, student interaction (I am excited to use the whiteboard in social studies.)	0	1	1	0	17

Emotional/Affective Measures

<i>Groups</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
White board, student interaction (I prefer to use the whiteboard instead of using paper and pencil.)	0	0	1	2	16
White board, student interaction (I prefer to work at my seat because I get embarrassed in front of the whole class.)	10	2	1	0	6*

*(4 of the students' answers not consistent with rest of the answers on surveys. Got confused in interpretation of question and rating scale.)

Cognitive Measures

<i>Groups</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
Overhead, teacher lecture (I am able to understand the lesson when I listen to the class.)	0	0	5	9	4
White board, student interaction (I am able to understand the lesson more with the whiteboard than if I was just listening to a class discussion.)	2	0	0	7	10

Cognitive Measures

<i>Groups</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
Overhead, teacher lecture (I am able to remember what we learned in social studies when I listen to the class.)	0	2	2	11	3
White board, student interaction (I think the whiteboard makes the lesson clearer and helps me remember more than just class discussion.)	0	1	1	0	17

Information Retention of 5th grade lesson with and without interactive lesson

5 months after the timeline lesson...

Class without technology 84.5% average 18 regular ed students

Class with technology 87.5% average 14 regular ed students

72% average 7 students with disabilities

Are there any implications of the data that are useful to you?

What would be the barriers to implementing UDL in your setting?

- **Schooling Issues Digest - Student Motivation and Engagement**
- 28/10/2005
- http://www.dest.gov.au/sectors/school_education/publications_resources/schooling_issues_digest/